

## ABSTRACT

The present additional control strategy has been developed to allow the gas turbine to operate at lower load or at other conditions where the total fuel required by the gas turbine is not optimum for full combustion of the fuel. The present invention manages air that bypasses the catalytic combustor and air that bleeds off of the compressor discharge. The bypass system changes the fuel air ratio of the catalytic combustor without affecting the overall gas turbine power output. The bleed system also changes the fuel air ratio of the catalytic combustor but at the cost of reducing the overall gas turbine efficiency. The key advantage of a catalytic combustor with a bypass and bleed system and the inventive control strategy is that it can maintain the catalyst at optimum low emissions operating conditions over a wider load range than a catalytic combustor without such a system.